

What is claimed is:

1 1. A semiconductor device, comprising:
2 a wiring board that includes an insulating substrate and a
3 wiring provided on the insulating substrate;
4 a semiconductor chip that is mounted on said wiring board;
5 an opening that is formed at a predetermined position in said
6 insulating substrate, one end of said opening being shut by said
7 wiring to form the bottom of said opening;
8 a thin film conductor that is formed on the surface of said
9 wiring and at the bottom of said opening;
10 an embedded conductor layer that is provided in said opening
11 while contacting said thin film conductor formed at the bottom of
12 said opening; and
13 an external connection terminal that is disposed at the other
14 end of said opening to electrically connect with said wiring through
15 said embedded conductor layer and said thin film conductor provided
16 in said opening;
17 wherein said thin film conductor includes gold plating layer
18 formed on the surface, said external connection terminal is of tin
19 or an alloy including tin, and said embedded conductor layer is
20 of a conductor that has a rate of solution to tin or an alloy including
21 tin lower than that of gold.

1 2. The semiconductor device according to claim 1, wherein:
2 said embedded conductor layer is of copper or nickel.

1 3. The semiconductor device according to claim 1, wherein:

2 said embedded conductor layer is of copper and has a thickness
3 of 20 μm or more.

1 4. A wiring board comprising:
2 an insulating substrate
3 a wiring provided on the insulating substrate;
4 an opening that is formed at a predetermined position in said
5 insulating substrate, one end of said opening being shut by said
6 wiring to form the bottom of said opening;
7 a thin film conductor that is formed on the surface of said
8 wiring and at the bottom of said opening; and
9 an embedded conductor layer that is provided in said opening
10 while contacting said thin film conductor formed at the bottom of
11 said opening;
12 wherein said thin film conductor includes gold plating layer
13 formed on the surface, and said embedded conductor layer is of a
14 conductor that has a rate of solution to tin or an alloy including
15 tin lower than that of gold.

1 5. The wiring board according to claim 4, wherein:
2 said embedded conductor layer is of copper or nickel.

1 6. The wiring board according to claim 4, wherein:
2 said embedded conductor layer is of copper and has a thickness
3 of 20 μm or more.

1 7. A method of making a wiring board, comprising the steps
2 of:

3 forming an opening at a predetermined position in an
4 insulating substrate;

5 forming a wiring pattern on the surface of said insulating
6 substrate such that one end of said opening is shut by said wiring
7 pattern to form the bottom of said opening;

8 forming a thin film conductor on the surface of said wiring
9 and at the bottom of said opening; and

10 forming an embedded conductor layer in said opening such that
11 said embedded conductor layer contacts said thin film conductor
12 formed at the bottom of said opening;

13 wherein said thin film conductor includes gold plating layer
14 formed on the surface, and said embedded conductor layer is of a
15 conductor that has a rate of solution to tin or an alloy including
16 tin lower than that of gold.

1 8. The method of making a wiring board according to claim 7,
2 wherein:

3 said said embedded conductor layer is of copper or nickel.

1 9. The method of making a wiring board according to claim 7,
2 wherein:

3 said embedded conductor layer is of copper and has a thickness
4 of 20 μm or more.